

ACCESSION NR: AP4023411

S:0048/64/028/003/0584/0589

AUTHOR: Sannikov, D.G.

TITLE: Contribution to the theory of the effective mass of domain walls in ferromagnetic materials Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 584-589

TOPIC TAGS: domain walls, domain wall effective mass, uniaxial crystal domain walls, cubic crystal domain walls

ABSTRACT: The calculations of W.Doring (Z.Naturforsch.a3,373,1948) and G.T.Rado (Phys.Rev.83,821,1951) of the effective mass of a moving domain wall in a cubic ferromagnetic crystal are extended to the case of a uniaxial crystal with positive anisotropy. The calculations for a cubic crystal were also so extended as to remain valid for arbitrary values of the first and second anisotropy constants. Only the final result is given for the second calculation. The calculation for a uniaxial crystal is based on an expression for the energy density of a 180° domain wall containing terms representing the exchange energy, the first and second order aniso-

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ropy energy, and the interaction of the magnetization with the field. The external field is assumed to be directed along the crystal axis and to vary harmonically with time. The equation of motion of the magnetization is taken from early work of L.D. Landau and Ye.M.Lifshits (Phys.Z.Sov.8,153,1935). A solution is obtained in a quasi-adiabatic approximation, i.e., it is assumed that the variation of magnetization within the moving wall differs from that within a static wall by a small quantity, of which the second and higher powers are neglected. The resulting effective mass, M , per unit area is $M = \frac{W_0/K_1\delta}{8\pi g^2\delta}$, where g is the gyromagnetic ratio, K_1 is the first anisotropy constant, W_0 is the energy density of the wall, and δ is the length characterizing the thickness of the wall. δ is defined by

$$W_0 = K_1\delta \left[2 + \frac{1+\sigma}{\sigma^2} \left(\frac{\pi}{2} + \arcsin \frac{\sigma-1}{\sigma+1} \right) \right],$$

where $\sigma = K_2/K_1$, and K_2 is the second anisotropy constant. For 90° domain walls in a cubic crystal with positive anisotropy the corresponding results are

$M = \frac{1}{8\pi g^2\delta} \cdot \frac{1}{1 + \frac{5}{6}\lambda(1 + 1/\sigma)}$ where $W_0 = K_1\delta$, $\lambda = K_1/2\pi I_0^2$, and I_0 is the saturation magnetization. The author says without further explanation that more accurate results will be achieved by replacing the coefficient $5/6$ in the denominator of the

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above expression by 4/5. Orig.art.has: 37 formulas.

ASSOCIATION: Fizicheskii institut im. P.N.Lebedeva Akademii nauk SSSR (Physical
Institute, Academy of Sciences, SSSR)

SUBMITTED: 00

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: PH

NR REF SOV: 003

OTHER: 003

3/3

Card

L 03027-67 EWT(1) IJP(c) GG

ACC NR: AP6015479

SOURCE CODE: UR/0181/66/008/005/1550/1554

AUTHOR: Sannikov, D. G.

ORG: Physics Institute im. P. N. Lebedev, AN SSSR, Moscow (Fizicheskiy institut)

TITLE: The theory of dispersion of dielectric permittivity in a polar solid

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1550-1554

TOPIC TAGS: dispersion theory, dielectric constant, polar solid, permittivity

ABSTRACT: The author performs a theoretical investigation of the dispersion of dielectric permittivity and establishes some of its characteristics. The investigation is performed because the class of substances in which this phenomenon may be observed is rather broad and it may include, in addition to polar solid dielectrics, electrets and some segneto- and anti-segnetoelectrics. An expression is obtained for the dispersion of the dielectric constant in a polar solid. The dispersion is determined by vibration processes of rigid dipoles in positions of equilibrium under the effect of an external field. The calculations were performed by the method of kinetic equation, assuming small deviations of the dipole from the position of elastic equilibrium. Orig. art. has: 20 formulas.

SUB CODE: 20/ SUBM DATE: 04Jun65/ OTH REF: 007

S/0043/64/02S/004/0703/0707

ACCESSION NR: AP4030647

AUTHOR: Sannikov, D.G.

TITLE: Contribution to the theory of domain wall motion in ferroelectric materials
[Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May
to 5 June 1963]

SOURCE: AN SSSR. Izv. Ser.fiz., v.28, no.4, 1964, 703-707

TOPIC TAGS: ferroelectricity, ferroelectric domain wall motion, dielectric disper-
sion, ferroelectric dielectric dispersion, barium titanate, barium titanate dielec-
tric dispersion

ABSTRACT: Previous calculations by the author of the motion of the 130° ferroelec-
tric domain walls in an oscillating field (D.G.Sannikov, Zhur.eksp.i teor.fiz.41, 133,
1961) are generalized to take account of electrostriction forces. The calculation is
limited to the case of a material having a cubic lattice and a center of symmetry in
the paraelectric state. Suitable potential energy and dissipation functions are as-
sumed, and the motion of the domain wall in a small sinusoidal electric field is cal-
culated with the aid of a number of simplifying assumptions. One condition for the

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validity of the solution is that the wavelength of the elastic waves excited by the oscillating field be long compared with the domain wall thickness. The remaining conditions are the same as in the earlier calculations and are discussed in the reference cited above. There is no limitation on the magnitude of the electrostriction. The electrostriction contributes both to the effective mass of the domain wall and to the dissipation. An additional contribution to the dissipation due to the radiation of elastic waves by the moving domain wall is found to be negligible. Numerical values of the relevant properties of barium titanate are adduced, and it is found that all the conditions for the validity of the calculations are met by this material. The dispersion measurements of J.G.Powles and W.Jackson (Proc.IEE,95,383,1949) and I.Fousek (Chelkiosl.fiz.zh.,9.172,1959) are discussed briefly, and it is concluded that domain wall oscillation can account for the observed dielectric dispersion in barium titanate. The dispersion is affected by the size of the domains, and it is therefore important to investigate dielectric dispersion and domain structure in the same samples. The present calculations are valid only for small amplitudes of the domain wall oscillation. In barium titanate, the maximum amplitude for which the theory is valid is less than the wall thickness. The large amplitude domain wall oscillations observed in barium titanate (E.A.Little, Phys.Rev.,98,978,1955) involve physical processes not considered here. Orig.art.has: 20 formulas.

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ACCESSION NR: AP4030647

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva Akademii nauk SSSR (Physical Institute, Academy of Sciences, SSSR)

SUBMITTED: 00

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: EM

NR REF SOV: 001

OTHER: 009

Card^{3/3}

Country : USSR
Category: Forestry Forest Cultures.

K

Abs Jour: RZhBiol., No 12, 1958, No 53485

Author : Sannikov, G.P.
Inst : Leningrad Forest Engineering Academy
Title : Geographical Pine Cultures at the Olkhensk Experimental
Training Leskhoz in Leningradskaya Oblast

Orig Pub: Tr. Leningr lesotekhn. akad., 1957, vyp. 81, ch. 3,
43-45.

Abstract: This article gives data on a comparative study of
the 43-year old geographical common pine cultures
started by Prof. V.D. Ogiyevskiy. Under the condi-
tions found at Olkhensk Leskhoz, the following pines
produce plantings that are quite satisfactory and

Card : 1/2

USSR / Forestry. Forest Crops:

K-5

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72837.

Author : ~~Sannikov, G. P.~~

Inst : Leningrad Forestry Academy.

Title : Geographical Pine Plantings in the Sobich Forest
of Sumskaya Oblast.

Orig Pub: Tr. Leningr. leotekhn. akad., 1957, vyp. 82, ch. 1,
49-61.

Abstract: Evaluation indicators of timber stands, structure
of root systems, weight and length of the needles,
degree of fruition, and structure of root systems
were investigated in pine plantings of the western,
northern, northeastern, and central regions of the
European part of the USSR, Poland, the Middle
Volga region, Western Siberia and Northern Kaz-
akhstan, which were all laid in 1912-1916. It

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SANNIKOV, G. P. Cand Agr Sci -- (diss) "Study of the geographic ^{crops} ~~cultivation~~ ^{management} of pine trees in the Sobieshskoye forestry ~~administration~~ ^{having} of the Shostka forestry of Sumskaya Oblast, and in the Okhtenskiy experimental-~~study~~ ^{management} forestry of Leningradskaya Oblast." Len, 1958. 18 pp (Min of Higher Education USSR. Len Order of Lenin Forestry Engineering Acad im S. M. Kirov), 100 copies (KL, 13-58, 99).

COUNTRY : USSR
CATEGORY : Forestry. Forest Cultures.

K

ABS. JOUR. : Izv. Zool.-Biologiya, No. 5, 1958, No.20156

AUTHOR : Sannikov, G.P.

INST. :
TITLE : The Contemporary Significance of Prof.V.D. Ogiyevskiy's Geographic Cultures.

ORIG. PUB. : Izv. vyssh. uchebn. zavedeniy. Lesn. zh., 1958, No.2, 59-65

ABSTRACT : The cultures were placed in experimental forest ranges in a number of regions of the European part of USSR, beginning in 1909. In Sobichskiy forest (Sumskaya Oblast) the best valuation characteristics are found in the pine culture produced from seeds of local origin. These have the same heights and diameters as the cultures grown from seeds of the pine woods along the right bank in the Ukraine and Belorussia. Somewhat less intensive was the growth

CARD: 1/4

SANNIKOV, G.P., kand.sel'skokhoz.nauk

Nomograms for determining the amounts of poisonous chemicals.
Zashch.rast.ot vred.i bol. 7 no.6:40-41 Je '62. (MIRA'15:12)

1. Severnyy institut gidrotekhniki i melioratsii, Leningrad.
(Agricultural chemicals)

SANNIKOV, G.P., kand.sel'skokhozyaystvennykh nauk

Destroying brush on farmlands. Zemledelie 24 no.2:33-41 F '62.
(MIRA 15:3)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki
i melioratsii.

(Clearing of land) (Herbicides)

SANNIKOV, G.P., starshiy nauchnyy sotrudnik

Granulated herbicides for controlling aquatic vegetation. Zashch.
rast. ot vred. i bol. 8 no.1:31-32 Ja '63. (MIRA 16:5)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki i
melioratsii.

(Aquatic weed control)

SANNIKOV, G.P., kand. sel'skokhoz. nauk

The OND-100 shrub sprayer. Zashch. rast. ot vred. i bol. ?
no.10:15 0 '62. (MIRA 16:6)

1. Severnyy institut gidrotekhniki i melioratsii.
(Spraying and dusting equipment)

SANNIKOV, G.P., kand. sel'skokhoz. nauk

Table for determining the expenditure rates for chemicals.

Zashch. rast. ot vred. i bol. 8 no.3:35 Mr '63.

(MIRA 17:1)

SANNIKOV, G.P., kand.sel'skokhoz. nauk

Eradication of shrubs in irrigation systems. Zemledelie 25 n.9:73-
77 S '63. (MIRA 16:9)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki i me-
lioratsii.

(Clearing of land)

BAISHEV, Talgat Iskhakovich; ENTIKOV, Gennadiy Pavlovich;
ENTIKIYEV, N.N., red.

[Operation of drainage systems] Eksploatatsiya osushitel'-
nykh sistem. Leningrad, Lenizdat, 1964. 154 p.
(MIRA 17:10)

SANNIKOV, G.P., kand. sel'skokhoz. nauk

Using arboricides in early spring in shrub control. Zashch.
rast. ot vred. i bol. 9 no. 4:29 '64. (MIRA 17:5)

1. Severnyy institut gidrotekhniki i melioratsii, Leningrad.

SANNIKOV, G.P., kand. sel'skokhoz. nauk

Effective life of herbicides. Zashch. rast. ot vrel. i bol.
9 no.6134 '64 (MIRA 1:87)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki
i melioratsii, Leningrad.

SANNIKOV, G.P., kand. sel'skokhoz. nauk

Coupled ORP sprayers. Zashch. rast. ot vred. i bol. 9 no.2:
31 '64. (MIRA 17:6)

1. Severnyy institut gidrotekhniki i melioratsii.

NIKITIN, A.G., inzh.; SANNIKOV, G.P., inzh.

Melioration work in the German Democratic Republic. Gidr. i mel.
16 no.10:55-62 0 '64. (MIRA 17:12)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki i
melioratsii.

SANNIKOV, G.P., kand.sel'skokhoz. nauk; ZVORYKINA, L.B., aspirantka

Early spring aerial chemical spraying of shrubs. Zemledelie 27
no.4:75-77 Ap '65. (MIRA 18:4)

1. Severnyy nauchno-issledovatel'skiy institut gidrotekhniki i
melioratsii.

SANNIKOV, I., inzh.; BUDAYLI, M.

The best interfarm organization in Tatarstan. Sel'. stroi. 15
no. 2:15 F '61. (MIRA 14:5)

1. Menzelinskiy raymezhkolkhozstroy (for Sannikov). 2. Korrespondent
gazety "Znamya Lenina" (for Budayli).

(Tatar A.S.S.R.—Construction industry)
(Collective farms—Interfarm cooperation)

SORKIN, Ya.G.; SOKOV, Yu.F.; SANNIKOV, I.A.; MIKITINA, L.G.

Operation of an assembly for catalytic reforming on a
platinum catalyst. Khim. i tekhn. topl. i masel 5 no. 11:8-
11 N '60. (MIRA 13:11)

(Cracking process)

SOV/137-58-8-16680

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 64 (USSR)

AUTHOR: Sannikov, I.I.

TITLE: Operating Experiences with Electrostatic Precipitators at the Mednogorsk Plant (Opyt raboty elektrofil'trov Mednogorskogo zavoda)

PERIODICAL: Sb. materialov po pyleulavlivaniyu v tsvetn. metallurgii. Moscow, Metallurgizdat, 1957, pp 168-176

ABSTRACT: Data are presented on the performance of electrostatic precipitators (EP) at the Mednogorsk Plant, where they serve to separate dust from the gases of copper blast furnaces in which sulfide Cu ores are treated and elementary S is produced. Before they enter the EP, the gases, at temperatures of 380-450°C, are cleansed of coarse dust in gas mixers and distributors. The gases are heavily dust-laden on entry into the EP (50-90 g/nm³) owing to the inadequate strength of the briquets of ore. The design of the EP is presented; gas velocity therein is 0.5 m/sec. The corona-discharge producing and precipitating electrodes of the EP are of chromium steel. The supply of high-voltage current to the EP is by high-voltage Siemens-

Card 1/2

SOV/137-58-8-16680

Operating Experiences with Electrostatic Precipitators (cont.)

Schuckert and AF-18 assemblies. The amount of dust separated in the EP was 3.7% of the weight of the charge in 1955, and the average ash content of the S on an annual basis was 0.042. A Zn content >2% in the ore causes irregular functioning of the EP. The EP does not precipitate coke-breeze dust. The dust precipitated in the EP is transported to the briquetting works. Measures carried out and planned to improve the work of the EP are adduced. Structural shortcomings revealed in the process of operation of EP are noted. Data on the labor force required for the gas-cleaning process and the system of payment of the personnel servicing this equipment are presented.

G.G.

1. Electrostatic precipitators---Operation
2. Electrostatic precipitators---Performance

Card 2/2

SANNIKOV, I.N.

Development of automatic control in the Vysokaya Mountain Mine.

Gor. zhur no.4:23-25 Ap 1963.

(MIRA 16:4)

(Sverdlovsk Province--Iron mines and mining--Equipment and supplies)
(Automatic control)

ANDREYEV, Petr Alekseyevich; CHERKASSKIY, Yakov Samoylovich;
LOPUKHIN, B.N., retsenzent; SERGEYEV, A.M., retsenzent;
SANNIKOV, I.V., nauchn. red.; VLASOVA, Z.V., red.

[Economic analysis of the balance sheet of a shipbuilding
enterprise] Ekonomicheskii analiz balansa sudostroitel'-
nogo predpriiatiia. Leningrad, Sudostroenie, 1965. 203 p.
(MIRA 18:5)

SANNIKOV, I.Ye.

A year's work using the new curriculum. Politekh. obuch. no.9:
32-36 S '57. (MIRA 10:9)

1. Grigor'yevskaya srednyaya shkola Nytvenskogo rayona Molotovskoy
oblasti.

(Education, Secondary)

KAZAKOV, Vyacheslav Anttipovich; SMOLOV, V.B., doktor tekhn. nauk
prof., retsenzent; SAPOZHKOV, K.A., kand. tekhn. nauk,
retsenzent; SANNIKOV, K.A., kand. tekhn. nauk retsenzent

[Calculating devices of analog computers] Vychislitel'nye
ustroistva mashin nepreryvnogo deistviia. Moskva, Mashi-
nostroenie, 1965. 427 p. (MIRA 18:12)

F SANNIKOV, M.F.

A

3557. WORK OF CUTTING MACHINES WITH BREAKING OR CUTTING BARS IN
KICELOVSK COAL FIELD. Sannikov, M.F. (Mekhanizatsiya truda i tyazhbel.
Robot (Mechanization of Arduous Work), Feb. 1951, 28, 29).

KUCHERSKIY, L. V., SANNIKOV, M. F.

Mining Machinery

Rock loader PPM-2. Mekh.trud.rab., 6, No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1952. Uncl.

DOLZHENKOV, A.T., kand.tekhn.nauk; LEVITSKIY, I.S., kand.tekhn.nauk;
SAN'KOV, V.M., kand.tekhn.nauk; ROZIN, M.A., red.; DRYEVA, V.M.,
tekhn.red.

[Repair work] Remontnoe delo. Izd.2., dop. 1 perer. Moskva,
Gos.izd-vo sel'khoz.lit-ry, 1960. 535 p.

(MIRA 14:3)

(Agricultural machinery--Maintenance and repair)

SANNIKOV, M. I.

Sannikov, M. I. - "Factors influencing the speed of transformation of coarse-wool sheep into Merinos under hybridisation", Sbornik nauch. rabot (Vsesoyuz. nauch.-issled. in-t ovtsevodstva i kozovodstva), Issue 16, 1948, p. 3-28, - Bibliog: 50 items.

So: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 7, 1949).

SANNIKOV, M. I.

Sannikov, M. I. - "Australian Merinos and the result of improving them by using local Merinos from Groznyy Oblast", Sbornik nauch. rabot (Vsesoyuz. nauch.-issled in-t ovtsevodstva i kozovodstva), Issue 16, 1948, p. 29-52.

So: U-3042, 11 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 7, 1949).

SANNIKOV, M. I.

Gavrilov, M. I., Sannikov, M. I., Kasimtsev, G. M. (Et al.) - "Results of the preliminary study of the contemporary condition of mongrel sheep breeding in north Caucasus and the Lower Volga," Sbornik nauch. rabot (Vsesoyuz. nauch.-issled. in-t ovtsevodstva i kozovodstva), Issue 17, 1948, p. 3-35, - Bibliog: 8 items

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

SANNIKOV, M. I.

Sannikov, M. I. and Likhacheva, Ye. I. - "The ways of producing a new breed of sheep having homogeneous semi-fine wool," Sbornik nauch. rabot (Vsesoyuz. nauch.-issled in-t ovtsevodstva i kozovodstva,) Issue 17, 1948, p. 36-55, - Bibliog: 8 items

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

SANNIKOV, M. I.

Sannikov, M. I. - "On the question of matching sheep in pairs in the breeding of fine-wooled sheep," Sbornik nauch. rabot (Vsesoyuz. nauch.-issled. in-t ovtsevodstva i kozovodstva), Issue 17, 1948, p. 116-31, - Bibliog: 6 items

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

SANNIKOV, M. I.

Sannikov, M. I. - "On a plan for the division of fine-wooled coarse-wooled half breeds into classes," Sbornik nauch. rabot (sesoyuz. nauch.-issled in-t ovtsevodstva i kozovodstva), Issue 17, 1948, p. 132-50, - Bibliog: 8 items

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

SANIKOV, M.I.

Agriculture

Thin-fleeced-thickwooled hybrids of sheep and their breeding. Moskva, Sel'khozgiz, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, DECEMBER 1952. UNCLASSIFIED.

1. SANNIKOV, M. I.
2. USSR (600)
4. Caucasus, Northern - Sheep
7. Work practiced of the sheep-breeding section on the "Vtoraya Piatiletka" Collective Farm. Dost. sel'khoz. no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

Card 1/1

Sannikov M.I.

USSR / Farm Animals. Small Horned Stock.

Q-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105639.

Author : Sannikov, M. I.
Inst : All-Union Scientific Research Institute of Sheep
and Goat Breeding.
Title : Methods of Overcoming the Depression During In-
breeding of Fine-Wool Sheep.

Orig Pub: Byul. nauchno-tekhn. inform. Vses. n.-i. in-t
ovtsevodstva i kozovodstva, 1956 (1957), No 3
(25), 30-42.

Abstract: Data are given on experiments concerning the un-
covering of factors affecting the results of in-
breeding. It was established that the negative
consequences of inbreeding manifest themselves
more strongly in flocks where the constitution
of sheep is weakened by systematic inadequate

Card 1/4

SANNIKOV, M. I.

SANNIKOV, Mikhail Ivanovich, kand.sel'skokhozyaystvennykh nauk; BOBYLEV, P.G.,
red.; GUREVICH, M.M., tekhn.red.

[Developing a highly productive flock of fine-wool sheep] Sozdanie
vysokoproduktivnogo stada tonkorunnykh ovets. Moskva, Gos.izd-vo
sel'khoz. lit-ry, 1957. 110 p. (Bibliotekha po ovtsevodstvu, no.3)
(Sheep) (MIRA 11:2)

SANNIKOV, M. I.

USSR/Farm Animals - Small Horned Stock.

Q-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, 2594

Author : M.I. Sannikov, F.N. Yanchenko

Inst : -

Title : On the System of Sheep Breeding in Mountainous Regions.

Orig Pub : Zhivotnovodstvo, 1957, No 4, 16-20

Abstract : Demonstrates the expediency of breeding semi-fine wool sheep (early maturing meat animals) in the foot hills and mountainous regions of northern Caucasus. The lambing was adjusted to take place in January-February. The lambs were slaughtered for meat at the age of 7-8 months. Each slaughtered lamb provided: 1.5-2.0 kilograms of wool, a sheep-skin, and 18-20 kilograms of high grade meat.

Card 1/1

SANNIKOV, Mikhail Ivanovich; LOBKOV, M.Ya., red.; STEPLYANKO, T.V.,
tekhn. red.

[Sheep breeds of Stavropol Territory and their breeding] Porody
ovets Stavropol'ia i plemennaya rabota s nimi. Stavropol', Stav-
ropol'skoe knizhnoe izd-vo, 1960. 175 p. (MIRA 14:9)
(Stavropol Territory—Sheep breeding)

SANEIKOV, M.I.; DOLYCHINA, I.N., red.

[Interbreeding various breeds in fine-wool sheep farming]
Mezhporodnoe skreshchivanie v tonkorunnom ovtsevodstve.
Moskva, Izd-vo "Kolos," 1964. 414 p. (MIRA 17:8)

SANNIKOV, M.V.; SHALAKIN, D.T.

Fastening ropes to transfer carriages of a blooming mill. Sbor.
rats.predl.vnedr.v proizv. no.5:22-23 '60. (MIRA 14:8)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Rolling mills)

F SANNIKOV, N. I.

859. DRY DUST CATCHING IN DRILLING RISING SHOT HOLES.
Bykhovskii, A. V., Sannikov, N. I. and Tadin, S. S. (Gornyi Zh. (Min. J.),
Aug. 1951, 22-23). An illustrated description is given of a device which
has been accepted for extensive industrial trials. The shank of each
jack hammer bit is enclosed in a dust collecting tube slightly larger
than itself leading to a dust receiver. From this air with dust in
suspension is drawn through a pipe by an ejector. The ejector receives
compressed air and water from pipe lines in the mine gallery and ejects
a suspension of dust and water in air into a small cyclone separator.
(L).

SANNIKOV, N.I.

BYKHOVSKIY, A.V., kandidat meditsinskikh nauk; SANNIKOV, N.I.

Methods of dry dust elimination in boring upraises. Bor'ba s sil. 1:
90-96 '53. (MLBA 7:10)

1. Chelyabinskiy meditsinskiy institut (for Bykhovskiy) 2. Karabash-
skoye rudoupravleniye (for Sannikov).
(MINE DUSTS)

ZELENTSOV, P.N.; SANNIKOV, N.P.

K.T. Butsel's article. Lit. proizv. no. 11:48 N '61. (MIRA 14:10)
(Coremaking) (Butsel, K.T.)

L 29957-65

ACCESSION NR: AR5003987

S/0277/61/000/010/0004/0004

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktiv i raschet detaley mashin. Gidroprivod. Otd. vyp., Abs. 10.48.18

AUTHOR: Sannikov, N. T.

TITLE: New characteristics of the mechanical properties of metals

CITED SOURCE: Sb. Vysokoprochn. chugun. Kiyev, Gostekhnizdat USSR, 1964, 263-271

TOPIC TAGS: metal mechanical property, index, alternating loading, shock loading, elastic deformation

TRANSLATION: The new indices R_p , V_p , H_p and K_x are proposed for characterizing the mechanical properties of materials which in use are subjected to alternating and shock loads. The specific elastic working capacity of a material is

$$R_p = \frac{\sigma_p^2}{2E} \quad \text{kgcm/cm}^3,$$

where σ_p is the limit of proportionality, approximately equal to

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L 29957-65

ACCESSION NR: AR5003987

the limit of elasticity; E is the modulus of elasticity; V_p characterizes the attainable speed of shock in the region of elastic deformation

$$\left(V_p = \frac{\sqrt{g}}{3\gamma E} \cdot \sigma_p \right),$$

where γ is the specific weight of the metal; g is the acceleration due to gravity. H_p characterizes the maximum attainable height of the shock in the region of elastic deformation $\left(H_p = \frac{R_p}{3\gamma} \right).$

The dynamic coefficient under impact K_A is the ratio of the specific impact stress σ_{Ap} in the region of elastic deformation to the maximum statistical stress from the weight of the sample itself. The use of these indices is very suitable for the selection of materials for machine parts and mechanisms which operate under dynamic, impact and inertial loads.

SUB CODE: MM

ENCL: 00

Card 2/2

SANNIKOV, P.A.

~~SANNIKOV, P.A.~~; BROMLEY, M.F., redaktor; NOVOEPASSKIY, V., redaktor;
MALEK, Z., tekhnicheskii redaktor.

[Ventilation in the establishments of the fur processing industry] Ventilatsiia na predpriatiakh makhobrabatyvayushchei promyshlennosti. [Moskva] Profizdat, 1953. 114 p. (MLHA 7:8)
(Fur) (Ventilation)

POPOV, A.N.; SPIVAK, A.I.; MAVLYUTOV, M.R.; Prinimali uchastiye: KOROTKOV, L.I.,
student; SANNIKOV, R.Kh., student

Analyzing a regime for the turbine drilling of wells. Burenie
no.5:6-8 '64.
(MIRA 18:5)

SANNIKOV, S.N.

Natural regeneration of pine in clear-cut areas of Pyshma Valley
pine forests. Trudy Inst. biol. UFAI SSSR no.16:81-106 '60.
(Pyshma Valley--Pine) (MIRA 13:10)

SANNIKOV, S.N.

Ecological characteristics of main types of microenvironment
in the natural reproduction of pine in clear-cuttings.

Trudy Inst. biol. UFAN SSSR no. 43:231-242 '65

(MIRA 19:1)

1. Institut biologii Ural'skogo filiala AN SSSR.

SANNIKOV, S.N.; KOLESNIKOV, B.P., prof., doktor bil.. nauk, otv. red.;
NORKIN, P.I., red. izd-va; TAMKOVA, N.F., tekhn. red.

[Natural regeneration of pine and measures for promoting it in
pine forests of the Pyshma Valley] Estestvennoe vozobnovlenie
sosny i mery sodeistviia emu v Pripyshminskikh borakh. Sverd-
lovsk, Akad. nauk SSSR. Ural'skii filial, 1961. 76 p.

(MIRA 15:9)

(Pyshma Valley--Forest reproduction)

SANNIKOV, S.N.; KOLESNIKOV, B.P., doktor biol. nauk, prof., otv. red.;
NORKIN, P.I., red. izd-va; TAMKOVA, N.F., tekhn. red.

[Natural regeneration of pine and measures for promoting it in
pine forests of the Pyshma Valley] Estestvennoe vozobnovlenie
sosny i mery sodeistviia emu v Pripyshminskikh borakh. Sverd-
lovsk, Akad. nauk SSSR. Ural'skii filial, 1961. 76 p.

(MIRA 15:11)

(Pyshma Valley--Forest reproduction)

S/182/60/000/011/010/016
A161/A029

AUTHORS: Kovalenko, V.F., Sannikov, S.S., Strukov, P.I.

TITLE: Calibrating a 4,000-Ton HKM3 (NKMZ) Crank Hot-Stamping Press
by the Crashers Method

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960², No. 11, pp.35-37
^

TEXT: Some foreign firms, as well as some Soviet plants have begun producing hot stamping presses of the crank type fitted with effort meters (the NKMZ in Kramatorsk, the ZTMP works in Voronezh). The meters have to be calibrated on site after installation of the press. A 4,000-ton press produced by the NKMZ has been calibrated at the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant) with the assistance of ENIKMASH. Two NKMZ-made effort meters are placed on the front, one on each column. They are scale instruments (Fig. 1) recording the strain in the press stand that is directly proportional to the applied effort. The stand elongation is determined in a 466-mm section by an indicator (8) with 0.003 mm scale divisions and 0.05 mm measurement range. When the press is under load, the deformation in the stand pulls the rod (7) which is fixed in the top

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S/182/60/000/011/010/016
A161/A029

Calibrating a 4,000-Ton HKM3 (NKMZ) Crank Hot-Stamping Press by the Crashers Method

plank (5) and slides in a bore in the frame (11). The screw stop (12) on the rod (7) exerts pressure on the measuring leg of the indicator and makes the hand swing. The brake (9) of the leg (10) is loaded with a spring set on the rod (4) and adjusted by the plug (3). The brake holds the indicator hand on the scale division reached under load on the press. The brake must be retracted by the rod (4) to put the indicator to zero. Efforts corresponding to the indicator readings are given on the plate (1). As no loading device with 4,000-ton effort was available at the Gor'kiy Automobile Plant, the press had to be calibrated using the "metod kresharov" (crashers method). [Abstractor's note: The term "kresher" suggests English "crashing"]. A "crasher" is illustrated in Fig. 2 and is a block of "45" steel of cylindrical shape. The blocks were calculated for 500-ton pressure. They were placed on especially prepared die inserts (Fig. 4). The calibration results are given in Table 2. A diagram has been plotted from these data (Fig. 5). (It can be seen in the table that the left indicator gave lower readings, which was probably due to uneven tightening

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S/182/60/000/011/010/016
A161/A029

Calibrating a 4,000-Ton HKM3 (NKMZ) Crank Hot-Stamping Press by the
Crashers Method

of the tie bolts on the left and right press stand side. The diagram was set up using the mean readings of two indicators). The arithmetic mean of the indicator readings had to be taken to determine the corresponding work pressure in the diagram. The data were filled into the table (1). It is mentioned that it would be better to use a diagram engraved on a metal sheet and that calibration must be repeated after retightening of the bolts. Some design deficiencies were revealed in the NKMZ indicators. An improved indicator design has been developed at ENIKMASH under supervision by Engineer L.P. Shipanov. [Abstractor's note: The new design is not described]. There are 5 figures.

Card 3/8

S/182/61/000/008/005/005
D038/D113

AUTHORS: Perevozchikov, B.S.; Sannikov, S.S.; Pasmanik, A.I.

TITLE: Experience in the debugging of low-burr stamping on a 4000-t
NKMZ crank drop forging press

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 8, 1961, 41-43

TEXT: This article deals with the debugging of a new "low-burr stamping" process, used for circular forgings, in which the metal instead of forming a circumferential burr flows inwards into the central compensating cavity of the die impression. This consequently saves a great deal of metal. The production of two forgings, i.e. the rear axle reduction gear drive pinions of the Волга (Volga) and the ГАЗ-51 (GAZ-51) automobiles was debugged on a 4000-ton НКМЗ (NKMZ) crank drop forging press at the forging department of the Gor'kovskiy avtomobil'nyy zavod (the Gor'kiy Automobile Plant) by workers of that plant and of the ENIKMASH. Forgings reduced 2.86 times were used in the initial stages of the process and the blanks were heated in a gas holding furnace to 1150-1200°C. The Volga rear axle reduction gear drive

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S/182/61/000/008/005/005

Experience in the debugging of low-burr stamping.. D038/D113

pinion was stamped as follows: upsetting of the blank on hammer heads, transfer of the upset blank into the work counter die; preliminary and final stamping in two press passes with a subsequent feeding of two punches to the counter die by a rotating punch head. The excess of metal during the last draw flowed across an internal burr bridge into the central cavity (compensator) of the punch of the third draw (Fig. 2). The height of the facing burr of the forging did not exceed 2-3 mm. As a result of the experiments, the weight of the blanks decreased compared to those now in use at the plant e.g. the Volga rear axle reduction gear drive pinion decreased by 1 kg, and that of the GAZ-51 by 3.5 kg. The new process is recommended for normal multi-die stamping. It is stated that the debugging of the production process would lower tool and equipment costs, and that the low-burr stamping process only recently attracted the attention of technicians and research workers. The following took part in the work: T.I. Protopopova, Yu.A. Bol'shakov, V.O. Korolev, G.N. Trostyanitser, G.A. Troitskiy and I.I. Devyatov. There are 4 figures, 1 table and 5 Soviet references.

Card 2/3

SANNIKOV, S.S.

Electron scattering processes at high energies. Zhur. eksp. i
teor. fiz. 40 no.1:237-245 Ja '61. (MIRA 14:6)

1. Fiziko-tekhnicheskii institut AN Ukrainskoy SSR.
(Electrons--Scattering)

SANNIKOV, S. S.

"Scattering of Photons by Photons and Inelastic Scattering of
Photons by Coulomb Field of a Nucleus in the Region of the
High Energies"

report presented at the Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

S/182/62/000/002/C05/006
D038/D112

AUTHORS: Sannikov, S.S. and Kovalenko, V.F.

TITLE: An automated die with a swing punch head for pressure forging

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 2, 1962, 34-37

TEXT: The authors describe the design and operation mode of an automatic die with a swing punch head which can be used in a 4000-ton hot stamping press for pressing circular forgings, requiring not more than four transfers in a single female die. The automatic die was developed by the ENIKMASH and built at the Gor'kovskiy avtomobil'nyy zavod (Gor'kiy Automobile Plant). Low-burr stamping using this die was described in an article by B.S. Perevozchikov, S.S. Sannikov and A.I. Pasmanik published in "Kuznechno-shtampovochnoye proizvodstvo", no. 8, 1961. The die has a swing disc equipped with three built-in punch holders which can swing through an angle of 120°, thus eliminating manual transfer from one die impression to another. The press can be operated automatically, semi-automatically and in two stages, when the press is operated by a pedal and the disc swing is controlled by a button. The die was tested under idle conditions and under load only by the

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S/182/62/000/002/005/006
D038/D112

An automated die with

latter method, due to a defect in the control system of the press; in the tests 2 driven gears of the rear axle of the "Volga" and **GAZ-51** (GAZ-51) automobiles were forged. The tests were satisfactory and only minor defects were revealed. They showed that the upsetting die blocks could be dispensed within a three-pass press operation and that the upsetting operation could be transferred into the main female die by installing the upsetting die block in the third free position of the disc and improving the removal of scale from the main female die. After industrial tests and debugging, the new die can be recommended for mechanization pressure forging on 4000, 6300, and 8000-ton presses for forgings weighing up to 50 kg. B.S. Perevozchikov, V.F. Kovalenko, A.M. Korostelev, G.Ye. Tverdovskaya, V.P. Salov and P.I. Strukov participated in designing the die. B.S. Perevozchikov, S.S. Sannikov and T.I. Protopopova from the ENIKMASH, and A.I. Pasmanik, Yu.A. Bol'shakov, V.O. Korolev, G.N. Trostyanitser, G.A. Troitskiy and I.I. Devyatov from the Gor'kiy Automobile Plant took part in the tooling and testing of the die. There are 3 figures and 1 Soviet-bloc reference. ✓

Card 2/2

34018

S/056/62/042/001/042/048
B102/B108

24.6712

AUTHOR: Sannikov, S. S.

TITLE: Inelastic photon scattering in the nuclear Coulomb field

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42,
no. 1, 1962, 282 - 285

TEXT: The invariant representation of the dispersion relations is used to study the inelastic scattering of a high-energy photon in the nuclear Coulomb field, in the first non-vanishing perturbation-theoretical approximation, i.e. when one photon is split in two. The region of small scattering angles and small changes in energy of the incident photon contributes most to the cross section of this process. Also this case is considered. The matrix element of photon disintegration is

$$M = 4\pi^2 Z e^2 (2\omega_1 \omega_3 \omega_4)^{-1/2} \int \frac{d^3 q}{q^2} A \delta(k_1 + q - k_3 - k_4), \quad (2);$$

the amplitude of the process is represented as the sum
 $A = A_1 + A_2 + A_3 + A_{1e} + A_{2e} + A_{3e}$, where the A_1 , A_2 and A_3 describe the processes
Card 1/5

Inelastic photon scattering in the ...

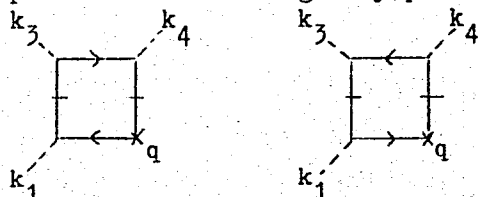
31018
S/056/62/042/001/042/048
B102/B108

$$(k_1, e_1) \rightarrow (k_3, e_3) + (k_4, e_4), \quad (4.I)$$

$$(-k_3, e_3) \rightarrow (-k_1, e_1) + (k_4, e_4), \quad (4.II)$$

$$(-k_4, e_4) \rightarrow (k_3, e_3) + (-k_1, e_1), \quad (4.III).$$

The partial amplitudes A_{1e} , A_{2e} , A_{3e} describe the corresponding exchange processes. The imaginary part of A_1 is determined from the Feynman graphs



which are characterized by the invariants $s = -(k_3 + k_4)^2$, $t = (k_1 - k_3)^2$, $u = (k_1 - k_4)^2$, with the conservation law $-s + t + u = q^2$;

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Inelastic photon scattering in the ...

S/056/62/042/001/042/048
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$$\text{Im } A_1 = \frac{1}{4\pi^2} \int d^4v \cdot \delta(kv) \delta(k^2 - s + 4m^2) \frac{S}{(vp - s + q^2)(vp' - s)},$$

$$S = \text{Sp} \left(\frac{i}{2} (\hat{k} + \hat{v}) - m \right) \gamma_\mu \left(\frac{i}{2} (\hat{v} - \hat{p}) - m \right) \gamma_4 \left(\frac{i}{2} (\hat{k} - \hat{v}) + m \right) \times$$

$$\times \gamma_\rho \left(\frac{i}{2} (\hat{v} - \hat{p}') - m \right) \gamma_\sigma e_\mu^{(1)} e_\sigma^{(3)} e_\rho^{(4)} \quad (10)$$

If $s \gg t \approx q^2 \gg 4m^2$, $t \gg s - u$,

$$\text{Im } A_1 \approx \frac{1}{4\pi^2} \left[(k_1)_4 (k_4 e_1) (e_3 e_4) \alpha + (k_1)_4 (k_4 e_3) (e_1 e_4) \beta + \right.$$

$$\left. + (k_4)_4 (k_1 e_4) (e_1 e_3) \gamma + \frac{(k_1)_4}{s} (k_1 e_4) (k_4 e_1) (k_4 e_3) \delta \right]. \quad (13)$$

$$\alpha = -\beta \approx 2(\pi/s) \ln(t/s), \gamma \approx -(\pi/s) \ln(t/s), \delta \approx -(\pi/s) \ln(t/s) \quad (14);$$

$\hat{k} = k_\mu \gamma_\mu$, γ_μ - Dirac matrices, m - electron mass; $p_1 - p_2 = v$, $k_3 + k_4 = k$,
 $k_1 - q = p$, $k_3 - k_4 = p'$; p_1, p_2 are the four-momenta of free electron
and positron, respectively, in the intermediate state. For the total
amplitude,

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34013

S/056/62/042/001/042/048

B102/B108

Inelastic photon scattering in the ...

$$A \approx \frac{1}{4\pi^2} [\omega_1 (k_1 e_1) (e_3 e_4) a + \omega_1 (k_1 e_3) (e_1 e_4) b + \omega_1 (k_1 e_4) (e_1 e_3) c + (\omega_1/s) (k_1 e_4) (k_4 e_1) (k_4 e_3) d], \quad (15)$$

$$\text{Im } a \approx \alpha - \beta_c \approx 0, \quad \text{Im } b \approx \beta - \alpha_c \approx 0, \quad (16)$$

$$\text{Im } c \approx \gamma - \gamma_c \approx -2 (\pi/s) \ln (t/s), \quad \text{Im } d \approx \delta + \delta_c \approx -2 (\pi/s) \ln (t/s).$$

is obtained; $\text{Re } a = \text{Re } b \approx 0$, $\text{Re } c \approx - (1/s) \ln^2 (t/s)$, $\text{Re } d \approx - (1/s) \ln^2 (t/s)$.
For the differential inelastic photon scattering cross section,

$$d\sigma \approx 8 \frac{Z^2 \alpha^5}{\pi^2} \frac{\omega_4 d\omega_4}{\omega_1^4} \frac{d\theta_3}{\theta_3^4} \text{ctg}^2 \frac{\theta_4}{2} d\theta_4 \times \left[1 + \cos^2 \frac{\theta_4}{2} \left(1 + \frac{1}{2} \cos^2 \frac{\theta_4}{2} \right) \right] \ln^4 \frac{4\omega_4 \sin^2 (\theta_4/2)}{\omega_1 \theta_3^2}. \quad (21)$$

is obtained, which is further approximated by

$$d\sigma \approx 4r_0^2 Z^2 \alpha^5 \frac{\omega_4 d\omega_4}{\omega_1^3} \ln^5 \frac{\omega_1}{\omega_4}, \quad (23);$$

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34018

Inelastic photon scattering in the ...

S/056/62/042/001/042/048
B102/B108

r_0 - classical electron radius. For $Z \sim 40$, the total cross section, $\sigma \sim 8.5 \cdot 10^{-2} r_0^2 Z^2 a^3$ is estimated to equal $\sim 10^{-30} \text{ cm}^2$. Professor

A. I. Akhiezer is thanked for advice and discussions. There are 1 figure and 3 references: 2 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: S. Mandelstam, Phys. Rev. 112, 1344, 1958.

ASSOCIATION: Fiziko-tekhnicheskii institut Akademii nauk Ukrainskoy SSR
(Physicotechnical Institute of the Academy of Sciences,
Ukrainskaya SSR)

SUBMITTED: August 21, 1961 (initially) October 9, 1961 (after revision)

Card 5/5

S/056/63/044/002/049/065
B108/B186

AUTHOR: Sannikov, S. S.

TITLE: Theory of photon scattering in a nuclear Coulomb field at high frequencies

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 2, 1963, 728 - 734

TEXT: The elastic scattering of photons with $\omega \gg m$ (ω - frequency of incident photon, m - electron mass) is studied by means of the dispersion relations (S. Mandelstam, Phys. Rev., 112, 1344, 1958; 115, 1741, 1959). An expression for the imaginary part of the scattering amplitude is found from the unitarity condition. The real part is then determined from the dispersion relations. For large scattering angles ($\theta \gg m/\omega$), the real part of the scattering amplitude gives the main contribution to the cross-section. After averaging and summing up over the photon polarizations in the initial and final states, the following expression is obtained for the differential cross-section:

$$d\sigma \approx \frac{Z^4 \alpha^6}{2^5 \omega^2} \frac{d\omega}{1 - \cos\theta} \ln^4 \left(\frac{2\omega^2 (1 - \cos\theta)}{m^2} \right).$$

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Theory of photon scattering...

S/056/63/044/002/049/065
B108/B186

This expression is valid for high frequencies and large angles. There are 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR
(Physicotechnical Institute of the Academy of Sciences of the
Ukrainskaya SSR)

SUBMITTED: September 18, 1962

Card 2/2

L 17625-63

EWI(1)/BDS AFFTC/ASD

s/056/63/044/003/036/053

54
53

AUTHOR: Kurayev, E. A. and Sannikov, S. S.

TITLE: Coalescence of photons in the Coulomb field of nuclei 19

PERIODICAL: Zhurnal eksperimental'noy i tekhnicheskoy fiziki, v. 44, no. 3, 1963, 1015-1022

TEXT: Z. Fried (Ref. 1: Nuovo Cim., 22 1303, 1961) investigated the coalescence of low frequency photons on electrons (an inverse double Compton effect). The authors investigate the same problem for photons of high frequencies ($\omega_i \gg m$; m = mass of the electron, ω_i = frequency of the photons) and show that the basic mechanism of coalescence of such photons is the coalescence in the Coulomb field of the nucleus. They obtain expressions for the probability of such type of coalescence and specialize them for the limiting cases of large and small photon frequencies as compared to the electron mass. Coalescence of photons in the high frequency region is investigated by the dispersion relation method. The low frequency range is investigated by introducing radiative corrections to the Lagrangian function of the electromagnetic field. At low frequencies their results

Card 1/2

L 17625-63

S/056/63/044/003/036/053

Coalescence of photons...

agree with those in Ref. 1. There are 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR (Physico-
Technical Institute of the Academy of Sciences UkrSSR)

SUBMITTED: October 22, 1962

Card 2/2

SANNIKOV, S.S.

Depolarization of relativistic electrons in a magnetic field.
Zhur. eksp. i teor. fiz. 45 no.3:797-799 S '63. (MIRA 16:10)

1. Fiziko-tekhnicheskij institut AN Ukrainskoy SSR.
(Depolarization (Electricity)) (Magnetic fields)

ACCESSION NR: AP4037589

S/0056/64/046/005/1761/1763

AUTHOR: Sannikov, S. S.

TITLE: Electron polarization in an inhomogeneous magnetic field

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1761-1763

TOPIC TAGS: electron polarization, inhomogeneous magnetic field, spiral electron polarization, nonrelativistic electron

ABSTRACT: In view of possible applications to electron velocities much smaller than the velocity of light, the author analyzes theoretically the feasibility of obtaining spiral electrons (polarized with and against the direction of the momentum) with the aid of an inhomogeneous magnetic field. Since low-velocity electrons are considered, the correlation between the spin and the momentum is calculated in the nonrelativistic limit. It is shown that an electron beam passing through an inhomogeneous magnetic field with a gradient

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ACCESSION NR: AP4037589

along the field lines acquires some longitudinal polarization which assumes unity value within $\sim 10^{-5}$ sec (path length $\sim 10^2$ cm). The polarization remains spiral if accelerated to high energies. Orig. art. has: 10 formulas.

ASSOCIATION: None

SUBMITTED: 01Nov63

DATE ACQ: 09Jun64

ENCL: 00

SUB CODE: NP

NR REF SOV: 001

OTHER: 003

Card 2/2

SANNIKOV, S.S. [Sannykov, S.S.]

Irreducible representations of a group of rotations of a three-dimensional Euclidean space set up in a class of functions with an infinite number of linearly independent elements. Ukr. fiz. zhur. 9 no.10:1139-1145 O '64 (MIRA 18:1)

1. Fiziko-tehnicheskii institut AN UkrSSR, Khar'kov.

L 12535-6: BMT(1)/EPA(s)-2/T/EEG (b)-2 Pt-10 IJP(c)/AFWL/ESD(ge)/ESD(t)
ACCESSION NR: AP4047902 S/0056/64/047/004/1345/1353

AUTHORS: Sannikov, S. S.; Dubovoy, E. I.

TITLE: On an allowed model in quantum electrodynamics

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. v. 47,
no. 4, 1964, 1345-1353

TOPIC TAGS: quantum electrodynamics, field theory, Lee model

ABSTRACT: A modified Lee model is considered in which Feynman diagrams are produced by means of symmetrization of Heitler diagrams, thus restoring to the model causality. However, the feature of all Lee models of noninteracting sectors is preserved, so that the model remains soluble. A number of properties of the model are investigated such as the renormalization constant and ghost states. The dependence of the position of the ghost state on the coupling constant and on the cut-off parameter is investigated. The expressions

Card 1/2

L 15695-66 EWT(1) IJP(e) GG

ACC NR: AP6002735

SOURCE CODE: UR/0056/65/049/006/1913/1922

AUTHOR: Sannikov, S. S.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR (Fiziko-
tekhnicheskii institut Akademii nauk UkrSSR)

TITLE: Non-compact symmetry group of a quantum oscillator

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49,
no. 6, 1965, 1913-1922

TOPIC TAGS: group theory, quantum oscillator, wave function, spin
system

ABSTRACT: The energy levels of a quantum oscillator are analyzed from
the point of view of the Lorentz group $\times_3$ which is its symmetry group.
The wave functions of the even (odd) oscillator levels are shown to
form irreducible representations of this group corresponding to the
weights $1/4$ and $3/4$. Several relations between the wave functions
are obtained as a consequence of the symmetry considered. All the

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L 15695-66

ACC NR: AP6002735

3

irreducible semi-inifinite representations with arbitrary (and complex) weight of the L_3 group are considered and expressed in terms of complex-variable functions. The results are of interest in connection with the group-theoretical approach to certain dynamics of quantum mechanics, in connection with certain quantum-system symmetry groups, generalized methods of Bose field quantization, and the group-theoretical approach to the study of complex spin. Orig. art. has: 44 formulas.

SUB CODE: 20/ SUBM DATE: 13Jul65/ ORIG REF: 006/ OTH REF: 010

Card

2/2 *2/2*

SANNIKOV, S.S.

Matrix elements of infinite-dimensional representations of a
rotation group. Ukr. fiz. zhur. 10 no.4:453-455 Ap '65.
(MIRA 18:5)

1. Fiziko-tekhnicheskii institut AN UkrSSR, Khar'kov.

SANNIKOV, S.S.

Two representations of a group of rotations with a complex spin. Ukr.
fiz. zhur. 10 no.6:689-690 Je '65. (MIRA 18:7)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

L 13552-66 EWT(d) IJP(c)

ACC NR: AP6001166

SOURCE CODE: UR/0367/65/002/003/0570/0581

AUTHOR: Sannikov, S. S.

ORG: None

TITLE: Representations of rotation groups with complex spin

SOURCE: Yadernaya fizika, v. 2, no. 3, 1965, 570-581

TOPIC TAGS: group theory, quantum theory, matrix function, mathematic space

ABSTRACT: The author considers representations of rotation groups corresponding to an arbitrary real or complex spin λ . The main features of such representations are their irregularity and multivaluedness. Irreducible representations are realized in infinitely dimensional spaces with indefinite metric and weak topology. The representations considered are unitary in the indefinite metric. The representations are realized as analytical functions of a complex variable by functions on the group (the matrix element) and also as functions on a sphere. The Clebsch-Gordan coefficients for the reduction of direct products of the representations are found. Orig. art. has: 51 formulas.

SUB CODE: 12,20 / SUBM DATE: 25Jan65 / ORIG REF: 009 / OTH REF: 006

Card

1/1 HW

28
B

VIBLYY, N.I.; SAUNNIKOV, S.S.

Muon production by electrons in the Coulomb field of the
nucleus. Izv. fiz. 2 no. 4:728-729 0 '65. (MIRA 18:11)

SAHNIKOV, S.S.

Multiple-valued representations of a rotation group, Ukr. fiz.
zhur. 10 no.8:920-921 Ag '65. (MIRA 13:8)

1. Fiziko-tehnicheskii institut AN UkrSSR, Khar'kov.

L 1111-66 EWT(1)/EWT(m)/EPF(c)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/AT/GS

ACCESSION NR: AT5020476

UR/0000/64/000/000/0296/0303

AUTHORS: Usachev, Ye. P.; Sannikov, S. V.

TITLE: Investigation of volt-ampere characteristics of titanium dioxide type rectifiers in pulsed and static conditions

SOURCE: Mezhevuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 296-303

TOPIC TAGS: titanium dioxide, titanium dioxide rectifier, semiconductor

ABSTRACT: The inverse volt-ampere characteristics of partially reduced TiO_2 semiconductors in pulsed and static states were determined. The experimental setup is shown schematically in Fig. 1 on the Enclosure. The specimens had the form of 10-mm round washers. The upper electrode of 0.5 cm^2 area consisted of Ag and the lower electrode of metallic Ti. Typical experimental results are shown in Fig. 2 on the Enclosure. It was found that the inverse volt-ampere dependence was linear up to 1.5-2 volts. From the temperature dependence of the inverse resistance it is concluded that TiO_2 semiconductors possess two impurity

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L 1111-66

ACCESSION NR: AT5020476

levels of 0.15 ev and 0.5 ev respectively. Orig. art. has: 9 graphs and 2 equations. 3

ASSOCIATION: FTI, Kazanskiy Filial, Akademii Nauk SSSR (FTI, Kazan Branch of the Academy of Sciences, SSSR)

SUBMITTED: 06Oct64

ENCL: 02

SUB CODE: NC

NO REF SOV: 005

OTHER: 000

Card 2/4.

L 1111-66

ACCESSION NR: AT5020476

ENCLOSURE: 01

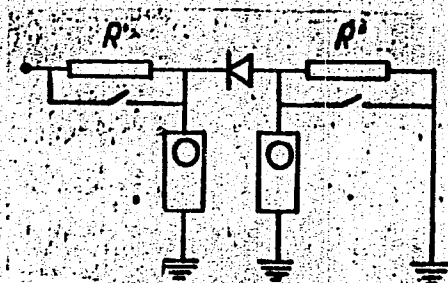


Fig. 1. Scheme for determining electrical parameters of semiconductors in pulsed states. (R^1 and R^2 are two identical ohmic resistors.)

Card 3/4

L 1111-66

ACCESSION NR: AT5020476

ENCLOSURE: 02

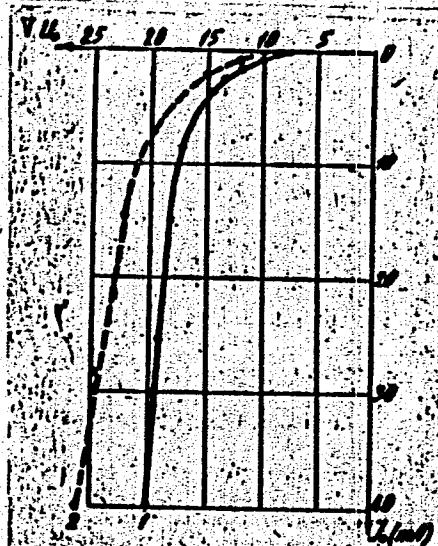


Fig. 2. Inverse volt-ampere characteristics of semiconductor. (1- static, 2- pulsed state)

Card

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SANNIKOV, V.A.

Steam boiler operation practices. Bum. prom. 31 no.11:22
N '56.

(MLRA 10:2) .

1. Nachal'nik teplovoy elektricheskoy stantsii tsellyulozno-
bumazhnogo kombinata.

(Balakhna--Woodpulp industry)

(Boilers)

BOGDANOVA, N.P.; KONEV, Yu.Ye.; ~~SANNIKOV, V.A.~~; SOLOV'YEV, S.N.;
SOKOLOV, B.V.; TSYGANOV, V.A.

Identification of the antibiotic 1160 produced by actino-
mycetes from the Actinomyces griseus group. Antibiotiki 10
no.3:195-201 Mr '65. (MIRA 18 10)

1. Leningradskiy nauchno-issledovatel'skiy institut anti-
biotikov.

SIMDYANKIN, I.I.; SANNIKOV, V.A.

Setup for the interception of pulp and liquid blown out of
the digester. Bum.prom. 35 no.1:21-22 Ja '60.
(MIRA 13:6)

1. Nachal'nik tsellyuloznogo zavoda Balakhninskogo kombinata
(for Simdyankin). 2. Nachal'nik Teplovoy-elektricheskoy
stantsii Balakhninskogo kombinata (for Sannikov).
(Balakhna--Woodpulp industry--Equipment and supplies)

SANNIKOV, V.A., inzh.

Improvement of the heating system of a steam-turbine.
Bum.prom. 35 no.2:21-22 F '60. (MIRA 13:6)

1. Balakhninskiy tsellyulozno-bumazhnyy kombinat.
(Balakhna--Steam turbines)

CHUPIKOV, F.F., inzh.; SANNIKOV, V.M., inzh.

Results obtained from testing windrowers on virgin lands. Trakt.
i sel'khoz mash. 30 no.6:24-27 Je '60. (MIRA 13:11)

1. Akmolinskaya mashinoispytatel'naya stantsiya.
(Harvesting machinery)

SANNIKOV, V.N.; LEVITSKIY, P.A., otv. za vypusk.

[Technological progress and its economic effectiveness in the manufacture and application of lacquers and paints] Tekhnicheskii progress i ego ekonomicheskaya effektivnost' v proizvodstve i primeneni lakokrasochnykh materialov; konspekt lektsii. Khar'kov, Khar'kovskii politekhn. in-t im. V.I.Lenina, 1960.
(MIRA 14:9)

(Paint) (Lacquers and lacquering)

SANNIKOV, V.N.

Qualitative changes in the balance of paint raw materials.
Trudy KhPI 22 no.2:67-81 '59. (MIRA 15:9)
(Paint materials) (Resins, Synthetic)